[0012] Another embodiment of the present invention comprises a system for document collaboration using at least a first contributing computer, a second contributing computer and a managing computer. The system comprises: a database coupled to at least the second contributing computer, where the database stores a document, a first replica of the document, and a second replica of the document, and wherein the first replica has an edit from the first contributing computer; and a display of the second contributing computer has a first window having the edit and a second window having a part of the second replica.

[0013] Another aspect of the present invention comprises a system for document collaboration between a managing author and at least one contributing author. The system comprises an application program stored in a computer readable medium and a database. The application program is used to create a replica of an original document, for use by the contributing author; to receive a response having proposed changes to the replica from the contributing author; and to incorporate the proposed changes into the original document, when accepted by the managing author. The database is used to connect to the computer readable medium, and to store the original document, the replica, and the response.

[0014] Yet another aspect of the present invention comprises a data structure stored in a computer readable medium for maintaining proposed and accepted changes to an original document in a document collaboration between a managing author and one or more contributing authors. The data structure comprises a document object associated with the original document; a revisions collection object associated with the document object, where the revisions collection object has one or more revision objects, and wherein a revision object has a revision sent to a contributing author for review; and a responses collection object associated with the revision object, where the responses collection object has zero or more response objects, and wherein a response object has a response having proposed changes to the revision from the contributing author.

[0015] A further aspect of the present invention comprises a method for collaboration between a plurality of contributing authors and a managing author using a common database. The managing author provides a document for review by the plurality of contributing authors. Next, a first contributing author of the plurality of contributing authors stores a first proposed change to the document in the common database and a second contributing author of the plurality of contributing authors stores a second proposed change to the document in the common database. Then on a display used by the first contributing author, the second proposed change is displayed, and on a display used by the second contributing author, the first proposed change is displayed.

[0016] An embodiment of the present invention comprises a computer-readable medium containing instructions for causing a computer system to provide an application with an interface for manipulating objects in a database, where the database is used for document collaboration. The instructions comprises adding a revision object when a document is added to the document collaboration; distributing for review by a contributing author a replica of the document; and associating a response object with the revision object based on a response received from the contributing author.

[0017] These and other embodiments, features, aspects and advantages of the invention will become better understood with regard to the following description, appended claims and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] **FIG. 1** shows a schematic block diagram of a document collaboration system;

[0019] **FIG. 2** is simplified block diagram of the document collaboration system of one embodiment of the present invention;

[0020] **FIG. 3** is an example of the collaboration process performed on an original document;

[0021] **FIG. 4** is a flowchart of the collaboration between a managing author and an internal contributing author of an embodiment of the present invention;

[0022] **FIG. 5** is an example of a manager graphical user interface ("GUI") of one embodiment of the present invention;

[0023] **FIG. 6** is an example of a internal contributor GUI of one embodiment of the present invention;

[0024] **FIG. 7** is another aspect of the internal contributor GUI of **FIG. 6**;

[0025] **FIG. 8** is another example of a internal contributor GUI;

[0026] **FIG. 9** is simplified block diagram of the document collaboration system of another embodiment of the present invention;

[0027] **FIG. 10** is an object model of an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0028] In the following description, numerous specific details are set forth to provide a more thorough description of the specific embodiments of the invention. It is apparent, however, to one skilled in the art, that the invention may be practiced without all the specific details given below. In other instances, well known features have not been described in detail so as not to obscure the invention.

[0029] In an embodiment of the present invention there are roles assigned to each person in a document collaboration. A person for a collaboration may have either a manager role as a managing author or a contributor role as a contributing author, but not both at the same time on the same document. A person may open the document in manager mode or contributor mode, but not both. When the person opens the document in manager mode, the document is locked, so that there is only one manager role. However, when the person closes the document, another person can open the document in manager mode. Thus control, i.e., the manager role, can be passed to separate individuals. For example, an individual may create and circulate an initial draft of a document as a manager and then have a secretary or other assistant take over the subsequent management of the document.. In addition a person may have different roles at the same time on different documents, for example, a person may be a